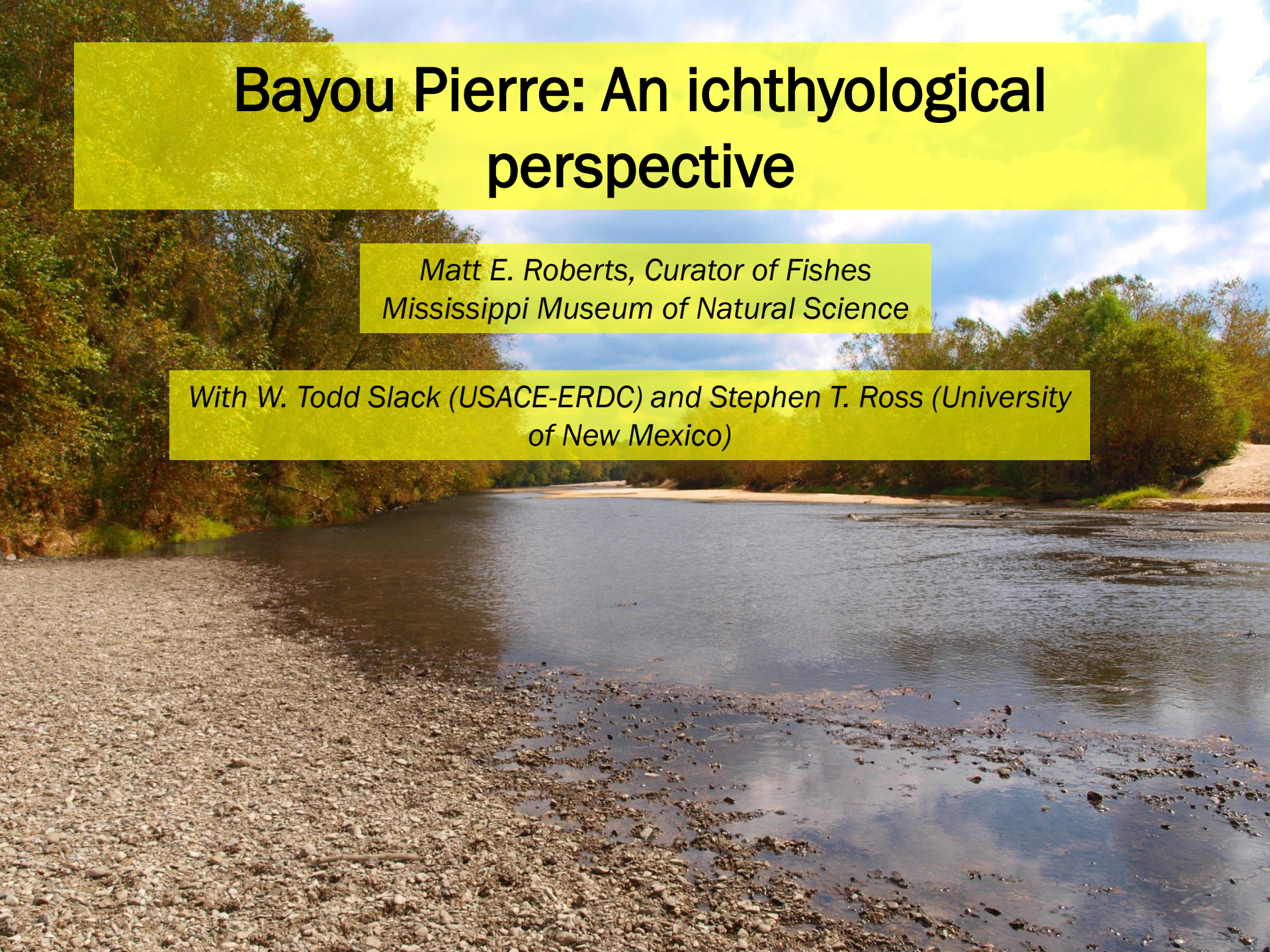


# Bayou Pierre: An ichthyological perspective

*Matt E. Roberts, Curator of Fishes  
Mississippi Museum of Natural Science*

*With W. Todd Slack (USACE-ERDC) and Stephen T. Ross (University  
of New Mexico)*



# MMNS Bayou Pierre Survey Coverage

- 48 total collections; 1947-2009
- 20 complete collections
- 65 vouchered species
- Average species richness = 19

## Legend

-  Bayou Darters Collected
-  Collection Sites
-  Bayou Pierre Proper
-  Large Tributaries
-  Small Tributaries

# Most Abundant Species



*Cyprinella camura* (bluntnose shiner)  
typically comprises 13% of a sample

# Least Abundant Species



*Ambloplites ariommus* (shadow bass)  
typically comprises < 1% of a sample

# Bayou Pierre SGCN Fishes



# *Etheostoma rubrum*, Bayou Darter



## 2008 Southeastern Fishes Council Desperate Dozen

Todd Slack

Mississippi Department of Wildlife, Fisheries and Parks  
Museum of Natural Science  
Research and Collections Program  
Jackson, Mississippi

Stephen T. Ross

Curator Emeritus of Fishes,  
Museum of Southwestern Biology  
University of New Mexico  
Albuquerque, New Mexico

# THREATS

- ❖ Bayou Pierre is experiencing accelerated erosion in the form of headcutting as the system stabilizes from downstream channel modifications (e.g., meander cutoffs, channelization, in-stream/bankside gravel mining).
- ❖ Extremely small native range and population fragmentation resulting from headcutting increases vulnerability to extinction.



Photo: P. Hartfield

Bayou Pierre above Smyrna - 1983



Photo: P. Hartfield

Bayou Pierre above Smyrna - 1985



Bayou Pierre above Smyrna ~ 1996



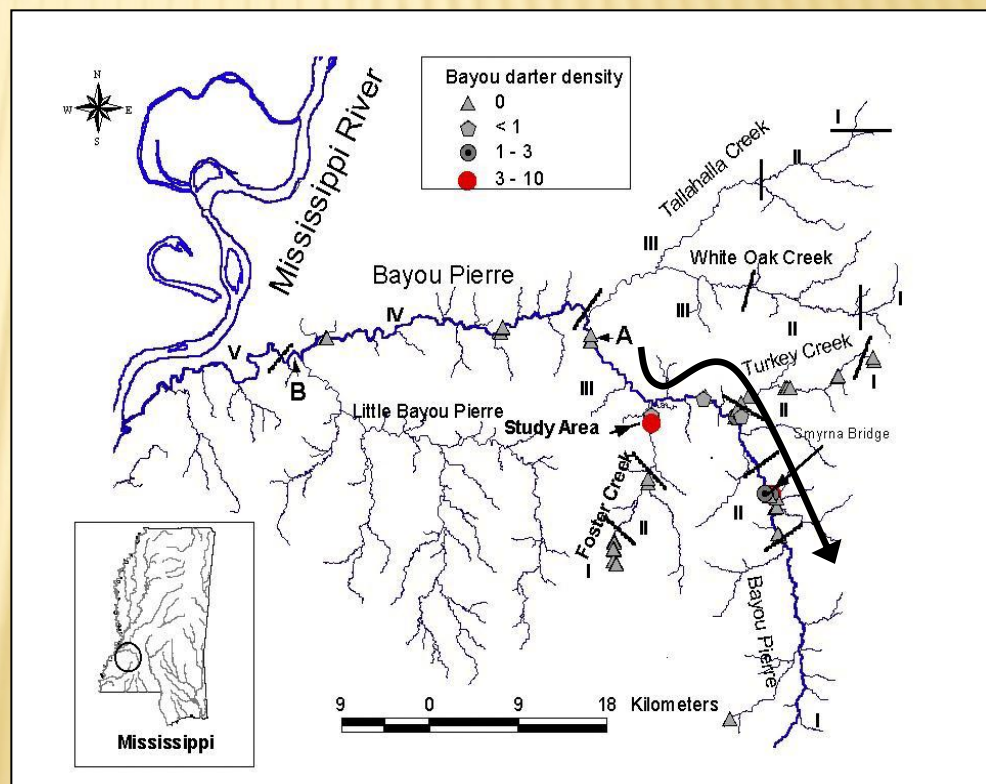
Bayou Pierre above Smyrna - 2003

# FOLLOWING THE NICK-POINT?

- ✿ The rate of nick-point movement has varied from 48-750 m/year (1940-1994) with the headcut on Bayou Pierre currently  $\geq 3$  km (1.86 miles) upstream of Smyrna.
- ✿ Early surveys within the system (1963-1975) noted the most upstream occurrence of bayou darter was 7.5 km (4.66 miles) downstream from the Smyrna bridge.
- ✿ Later work (Matthews, 1978) categorized the bayou darter as present but uncommon at the Smyrna bridge.
- ✿ As of 2008, the highest densities of bayou darter in Bayou Pierre occur upstream of the Smyrna bridge.

# CONCERNS

- ❖ The Bayou Darter has moved upstream following the zone of active erosion in response to development of upstream riffle habitat.
- ❖ Once the headcutting cycle reaches the headwaters, however, it is uncertain how much suitable habitat will remain in the stream. While headcutting results in the creation of upstream riffle habitat, it also promotes sedimentation of suitable downstream habitat.



Ross et al. 2001

# CONSERVATION ACTIONS

- ✿ Reduction and/or cessation of activities that exacerbate headcut formation and nick-point migration.
- ✿ Restrictions on gravel mining in or near Bayou Pierre should be implemented and enforced.
- ✿ Continue promoting landowner cooperation by negotiating cooperative agreements with local managing entities (e.g., board of supervisors, private landowners, timber companies, highway departments, NGO) to reduce erosion within the system by establishing conservation easements, streamside buffer zones and implementing bank stabilization programs to restore previously damaged areas.
  - ✿ Partners for Fish and Wildlife agreements with local landowners for small-scale bank stabilization projects.
  - ✿ Open dialogue between USFWS and private timber companies concerning the importance of watershed conservation on their land.
  - ✿ Recommendations to DOT and NPS regarding bank stabilization projects in proximity to the Bayou Pierre watershed.

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